

C and C'. By turning the plates G either forward or backward the jaws D are simultaneously caused to approach or recede from the center or the axial line of the barrel, and are thus radially adapted to casks of different diameters.

Instead of the plates G having involute slots G', a plate, G, as shown in Fig. 14, may be used, provided with equidistant studs R and links S, fitting upon the parts D² of the jaws D. The operation of this form of device is the same as that first described in expanding or contracting the circle of the jaws D on the heads C and C' to suit different diameters of casks.

Upon each of the arms E', back of the tooth or shoulder E², is a second shoulder, E³, adapted to engage with the truss-hoops and draw them off from the casks. The bevel and portions of arms E' beyond the tooth or shoulder E² is of such form as to be adapted to rest on the outer surface of the hoops H.

To each of the arms E', near to the points jointed to the jaw D, is attached a spring, F³, (shown detached in Fig. 15 and as applied in Fig. 10,) projecting at right angles of the arm E toward the center of the head C, and having a slit formed in the end to fit over the rods or bolts F F between the collars F' and F², fastened thereon.

The rods F are susceptible of motion lengthwise, and when moved toward the cask they cause the arms E to open, and when moved away from the cask cause the arms E to close upon the hoops H. The springs F³ act as levers in conjunction with the arm E', and their elasticity permits the levers E to adapt themselves to any variations from the circular form in casks and hoops. The slotted ends of the springs F³ permit them to slide in and out on the bolt or rod F without becoming disengaged from the rod F and collars F' and F² when the radial adjustment of the jaws D and the connected parts is changed.

The levers E' are pressed in toward the center of the cask B by means of springs F³, and are opened by means of levers F⁴ operating the rods F. The levers F⁴ are connected by a rod, F⁶, which is adjustably connected to one of the levers F⁴, as shown at F⁷ in Fig. 2, so as to operate both levers simultaneously in different adjustments for different lengths of casks. By means of a shifter applying the bands turning the pinion C² by its connected gearing in either direction the heads C and C' can be forced toward each other or drawn apart, and by means of the rod F⁶ the arms E may be simultaneously opened and closed.

In the modified form of the machine shown in Figs. 4, 5, and 6 a right and left screw, M, and nuts N and N' are substituted for the pinion C² and racks C³ and C⁴ for propelling the heads C and C'. The motion from the nut N' is transmitted to the head C by means of rods N². This form of machine possesses the advantage of a more direct transmission of force than that shown in the preceding figures; and

the rods N², acting as guides, supersede the bed-plate A³ required in the other form of machine.

The machine is operated as follows: The cask B, with the truss-hoops B³ upon it, is placed on the truck A centrally with the heads C and C'. A hoop of metal is then placed upon each end of the cask at the points marked B⁴, and the arms E' being closed upon it, so that the shoulders E² bear against the outer edges of the hoops, and the power applied by means of the shifter, so that both end hoops are forced tightly on the casks. The motion of the driving-gear is then reversed, so as to loosen the hold of the arms E' on the end hoops, and the arms opened by moving the rod F⁶, and the heads C and C' are then moved toward each other sufficiently to permit the hooks or shoulders E³ to pass over the truss-hoops B³. The arms E are then closed by moving the rod F⁶, and upon applying power by the shifter the heads C and C' are drawn apart, pulling the truss-hoops B³ off, after which the intermediate permanent hoops are applied and forced on in the same manner as the end hoops.

Having described my invention and the mode of using the same, what I claim is—

1. In a machine for driving hoops upon casks, the combination of radially-adjustable jaws D and arms E, hinged thereto, having claws E², with the pair of heads C and C', and arranged to reciprocate through varying distances in opposite directions by means of gearing propelled by a reversible driving mechanism, substantially as and for the purpose set forth.

2. In a machine for hooping casks, the truck A, having V-shaped bearings A', adjustable thereon in height, and adapted to hold casks of different diameters centrally between the driving-heads C and C', in combination with said driving-heads, provided with arms E' and jaws D, radially adjustable thereon and arranged to reciprocate simultaneously in opposite directions, as and for the purpose set forth.

3. The combination of the rigid arms E', springs F³, spring arms or levers F³, operated by the rods F, having collars F' and F² thereon, and moved by the levers F⁴, connected adjustably at F⁷ by the rod F⁶, for the purpose of adapting the machine to casks of different lengths, substantially as described and shown.

4. In a machine for driving hoops on casks, the combination of the rigid arms E', provided with shoulders E² and E³, adapted to drive on or retract hoops from casks, with the elastic actuating-arm F³, connected by the collars F' and F² on the rods F, for applying and releasing the shoulders E² and E³ to and from hoops upon casks of imperfect circular form, as and for the purpose set forth.

5. In a machine for driving hoops on casks, the double series of arms E', having shoulders E² and E³, adapted to drive on or draw off the hoops of casks, in combination with the rods F' and the spring-levers F³, and a driving